

FE337

WIRE DRAG

Diagram No. 1279-2

NOAA FORM 76-35A

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE

DESCRIPTIVE REPORT

Type of Survey ... Wire Drag
Field No. R/H-40-3-73
Registry No. FE-337WD

LOCALITY

State Louisiana--Texas
General Locality ... Gulf of Mexico
Sublocality Sabine Bank

19 73

CHIEF OF PARTY
CDR L.E. Pickens

LIBRARY & ARCHIVES

DATE April 10, 1990

☆U.S. GOV. PRINTING OFFICE: 1985-566-054

FE337

WIRE DRAG

11332

11390

1134

11310

HYDROGRAPHIC TITLE SHEET

~~H-9368WB~~ FE-337 WD

INSTRUCTIONS - The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

FIELD NO.

RH-40-3-73

State ~~TEXAS~~ LOUISIANA -- TEXASGeneral locality ~~SABINE PASS~~ GULF OF MEXICOLocality ~~SABINE PASS ANCHORAGES AND FAIRWAYS~~ SABINE BANK

Scale 1:40,000 Date of survey 16 JULY 1973 - 31 AUG. 1973

Instructions dated 26 JAN 1973 Project No. DPR-479

Vessel NOAA Ships RUDE & HECK

Chief of party CDR. L.E. PICKENS

Surveyed by CDR. L.E. PICKENS

Soundings taken by ~~echo sounder, hand lead, XXXX~~ wire drag

Graphic record scaled by N/A

Graphic record checked by N/A

Protracted by NOAA Ships RUDE & HECK & Hydrographic Processing Unit (AMC) Automated plot by N/A

Verification Soundings processed by Hydrographic Processing Unit (AMC)

Soundings in fathoms feet at MLW ~~XXXXX~~ BASED ON PREDICTED TIDES Smooth Tides

REMARKS:

J.S.W.H. 5-23-90

✓ AWOIS + SURF 5/90 RUD

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PROGRESS SKETCH

OPR-479-R/H-73

WIRE DRAG: SHEET 40-3-73

GULF OF MEXICO

NOAA SHIPS RUDE & HECK

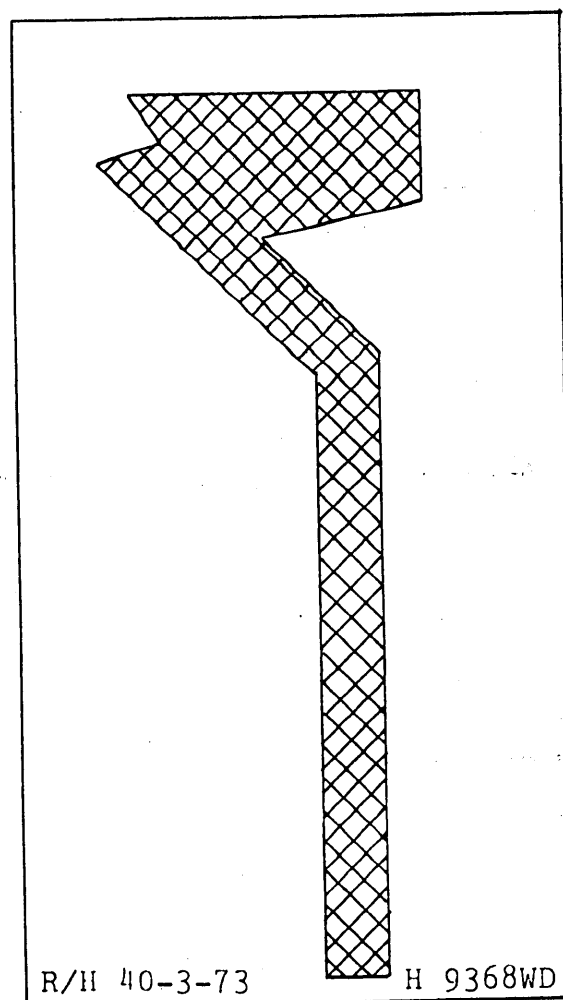
L.E.PICKENS, CHIEF OF PARTY

AUGUST 1973

SCALE 1:458,596

LINEAR NAUTICAL MILES: 96.95

SQUARE NAUTICAL MILES: 88.63



REPRESENTS AREA COMPLETED

+29 00
94 00

+
93 30

A. AUTHORITY

This project was authorized under Project Instructions 479-RU/HE-73, Wire Drag, investigations for the Safety Fairways, Gulf of Mexico dated 26 January, 1973. Also Change #1 dated 6 April, 1973; Change #2 dated 24 July, 1973 and Change #3 dated 3 October, 1973. See ATTACHMENT VI. ✓

B. CHARACTER AND LIMITS OF THE WORK

The purpose of this project was to clear Sabine Anchorage and Safety Fairways leading to Sabine and Port Arthur, Texas. During this project we investigated items #15A and #32 which were on the Project Instructions for 1972. The locality, covered by C&GS Charts 1279, is as follows: Sheet layout is from Latitude 29°08'N to 29°38'N and Longitude 93°32'W to 93°52'W. This boat sheet covers Sabine Anchorage as well as sections of the Safety Fairways. The entire survey was conducted on a scale of 1:40,000 using Raydist DR-S Range-Range control. The effective depths, based on predicted tides, range from a minimum depth of 25 feet to a maximum depth of 51 feet. ✓

Not available during processing.

C. CONTROL AND SHORELINE

Not verified during modified processing.
Raydist DR-S Range-Range control was used. The Raydist was operating on a frequency of 3300.4 KHz, giving a lane width of 45.39904 meters. Two Raydist shore stations, DALLAS and HANT were utilized for control. DALLAS, located in Peveto Beach, Louisiana served as the Red Station. HANT, located about 20 miles west of Sabine Pass, served as the Green Station. There was no shoreline on the sheet. Upon completion of the survey the stations were dismantled; both stations are recoverable. For further information on the stations see ATTACHMENT VII. A listing of all signals used is given in ATTACHMENT I. ✓

D. DATE OF SURVEY

Operations for OPR-479 Sheet RU/HE 40-3-73 commenced on 16 July, 1973 and terminated on 31 August, 1973. ✓

E. TIDAL REDUCERS

Preliminary reduction of each days data was done using predicted tides. Actual tidal data has been furnished by the Rockville office for the standard tide gauge on the west jetty at Sabine Pass, Latitude 29°39.2N and Longitude 93°49.8W. This gauge was serviced by LTJG Alan P. Vonderohe. The observer of this gauge was Warrent Officer Wampler who's stationed at the Coast Guard base in Sabine. ✓

F. JUNCTIONS

There were no other junctions with Sheet R/H 40-3-73.

*Survey FE-326 WD, formerly H-9541
WD, joins this survey to the east. No
junction was effected during modified
processing.*

G. SPLITS

See para. M (Addendum)

There was one split on this sheet. It occurred around buoy R"4" and ranges ~~F-3~~, F-4, F-5 and F-6; also with range R-5. It was approximately in Latitude 29°29' and Longitude 93°40'. Because of the amount of obstructions in this area we did not have enough time to clear this holiday. *Splits were not considered during modified processing.*

H. GROUNDINGS AND HANGS

See the Addendum.

Occasionally we set our wire out aground in a shoal area which dropped off into a deeper bottom. The hangs we encountered are as follows:

1. E Day: A wooden frame, ^{of a wk} Latitude 29°37.38'N and Longitude 93°³48.23'W. *AWOIS #7551*
Not considered a hazard. Least depth: 34'. *Do not concur*
2. J Day: A collapsed survey tower, Latitude 29°31.58'N and Longitude 93°40.65'W. Least depth: 30' in 36' of water. This is *AWOIS #7012*
considered a hazard. A clearing strip was run on Y Day.
3. K Day: A concrete block. This was not considered a hazard so the strip was not worked up. The hang on this obstruction occurred outside of the Project Limits where we were attempting to obtain overlap.
4. M Day: A danforth anchor. The anchor was removed so it no longer is a hazard. *Concur*
5. V Day: Item #15, a double bottom ship located at Latitude 29°34.50' and Longitude 93°48.97'. Least depth: 29'. Clearing strip *AWOIS #7018*
was run on Z Day at 24 1/2'. There were two parts of this boat on the bottom in different locations. *Only the one hang was identified. There was no other information in any of the survey records that point to another section of this wreck.*
6. X Day: A collapsed survey platform, 30' in 37' of water. Latitude *AWOIS #7017*
29°33.88' and 93°45.57'. This tower was cleared to 29' on Y Day.

I. GENERAL NOTES

Calibrations were not verified during modified processing.

Morning and evening Raydist calibrations were generally made by circle calibrating either the dredging range R"2" or Sabine Bank Light. There were numerous other objects to circle calibrate on but mainly these two were used.

The 16th and 17th of July were spent locating all of the buoys, dredging ranges and platforms in the area. Dredging ranges F-1 and F-2 were found to be skeleton towers no longer in use. The distance from the Raydist antenna to the end buoy varied as follows: for an 800 ft. towline, 265 meters; for a 1,000 ft. towline, 326 meters. ✓

In addition to morning and evening calibrations, frequent lane count checks were made on fixed dredging ranges and on navigation buoys whenever practical. The following occurrences should be noted when verifying these surveys: ✓

See the Addendum to this Report.

B Day (19 July 1973)

The drag was set out aground but as soon as the wire came off of the shoal area the drag was normal. During this drag the wire parted on RUDE'S towline, 20' from N Buoy. There was a temporary hang but divers found no obstructions. A Raydist reading was taken at the position of N Buoy, where a hang was suspected, and it turned out to be the location of a survey platform located on Chart 1279 16th ED, 5 Feb., 1972. This platform had been reported as being removed from the area. It was located by a drag on J Day and reported to the Corps of Engineers. ✓

Strip J-1

E. Day (25 July 1973)

This drag was run in the NE corner of the anchorage area. Divers reported the hang to be a wooden frame 6 inches off the bottom. This is not considered a hazard and therefore was not reported as such. ✓

also recorded as 6 feet in the Volume

H Day (1 August 1973)

The field corrected Raydist values were used in smooth plotting.

Between morning and evening calibrations at Sabine Bank Light the RUDE gained two lanes on the Red and one lane on the Green. Prior to setting out the first drag, the ships "sat out" a severe rain storm; this is possibly where lane gain occurred. See also, RU/HE Season's Raydist Report. ✓

"C"

Also it was found that dredging range F "6" was partially destroyed and leaning. Buoy R "4A" was no longer at its original position as of 17 July, 1973. Instead, it was found to have broken its mooring chain and drifted. The Coast Guard was notified of this fact. ✓

R Day (14 August 1973)

In the second strip of the day both the Red and Green were lost during a rain squall so this strip was saved but not worked up. ✓

S Day (15 August 1973)

This drag had a high lift in sections 3-4 and 4-5. These areas were covered later in other drags. Item #32 was covered by this drag. ✓

V Day (21 August 1973) *strip Z-1*

Item #15A was found with this drag. It was a double bottom boat in 38' of water and its least effective depth was 29'. The ship is lying in the bottom with the hull facing upward. *Item #7018* ✓

Z to CA Day (28 August - 31 August 1973)

These days were spent hanging buoys and ranges from opposite directions. They were run mostly in the channel from a N to S direction and from a south to north direction. ✓

J. CURRENTS

Generally the current was from a NNE direction and it was always less than 1 knot in velocity. Later on in the evening a clockwise rotation of the current was observed and we had currents from the ENE and also from the West. The current normally caused sag to occur in our drags. The strongest current was observed in the channel but we used small drags in this area so we were able to overcome the current there. We determined our currents by using a buoy with a length of wire attached to a flat surface that was placed at a certain depth. By monitoring the movement of this buoy the velocity and direction of the current was determined. ✓

K. DISCREPANCIES AND COMPARISONS WITH RECENT SURVEYS AND CHARTS

We used the charted depths from the most recent surveys and charts to plan our daily dragging operations. In general, they were found to be accurate. We found some obstructions not listed on charts. (See ATTACHMENT II.) *See the Addendum.* ✓

On Q Day we dragged the area for Item #32 in the southern section of the fairway. We found nothing and our effective depth was 41'. Item #32 was reportedly at an effective depth of 40'. Recommend this item be removed from the chart. *- Do not concur. See FE-245 (1983) Evaluation Report Sect. 6.6. See the Addendum.* ✓

On V Day we worked in the area of Item #15A. We found two parts of a double bottom boat at Latitude 29°34.50'N and Longitude 93°48.97'W. It is the hull of an old ship turned upside down, lying in the mud. We cleared this item with another strip on Z Day. *#7018* ✓

L. PERSONNEL AND EQUIPMENT

During this survey the RUDE & HECK acted as Guide Vessel and End Vessel respectively. Both vessels were equipped with Raytheon DE-723 Fathometers. Normally the launches alternated as drag tenders except on calm days when skiffs were utilized. Bearings to end buoys and to opposite vessels were made on the Sperry Gyro Repeaters. Standard wire drag equipment was used throughout the survey. ✓

Officers aboard during work on this survey included: CDR L.E. Pickens, LCDR W.M. Noble, LTJG H.B. Arnold, ENS T. Bergner, ENS K. Van Train, and ENS D. Sigrist. ✓

M. MISCELLANEOUS

Usually we ran reconnaissance hydrography over the area that we intended on dragging. Then we set our uprights according to what we found the depths to be with our hydro. This method proved to be the most successful. This hydro usually agreed with the charted depths. *See the Addendum.* ✓

N. SUMMARY

The Sabine fairways were greatly populated with buoys and dredge ranges. Because of this a lot of maneuvering by both ships became necessary. ✓

The bottom in this area was irregular and caused a lot of cranking and occasional mud hangs. Because of this type of bottom we had to run from a shoal area into a deep area. This was done by setting our buoys out aground and pulling them off of the shoal, and ending when the drag went aground again. ✓

O. RECOMMENDATIONS

Item #32 should be removed from the chart. There are two collapsed survey platforms that are a hazard and should be either removed or charted. (See ATTACHMENT II). *Don't Concur* ✓

See the Addendum

LIST OF ATTACHMENTS

- I. A) RAYDIST CONTROL STATIONS
B) VISUAL CONTROL SIGNALS
- II. LIST OF GROUNDINGS & HANGS
- III. A) *DAILY RAYDIST CORRECTORS
B) *ELECTRONIC CALIBRATION INFORMATION
- IV. *STATISTICS
- V. *AIDS TO NAVIGATION
- VI. *PROJECT INSTRUCTIONS
 - A) *CHANGE #1
 - B) *CHANGE #2
 - C) *CHANGE #3
- ~~VII.~~ RAYDIST STATION DESCRIPTIONS
- VIII. A) *TIDES, SMOOTH ← *The smooth tides are in a separate envelope in the survey records.*
B) *REPORT ON TIDE STATION
- IX. PARAMETERS
 - A) *BOAT SHEET, REQUEST FOR
 - B) *ELECTRONIC CONTROL PARAMETERS

** = Data removed from the Descriptive Report and filed with the field records.*

ATTACHMENT I

A. RAYDIST CONTROL STATIONS

STATION	LATITUDE	LONGITUDE	REMARKS
DALLAS	29°45'38.5070"	93°34'03.1639"	Red Station
HANT	29°40'03.091"	94°04'20.736"	Green Station

DESCRIPTION OF TRIANGULATION STATION

NAME OF STATION: DALLAS

STATE: Louisiana

COUNTY: Cameron Parish

CHIEF OF PARTY: L.E. Pickens

YEAR: 1973

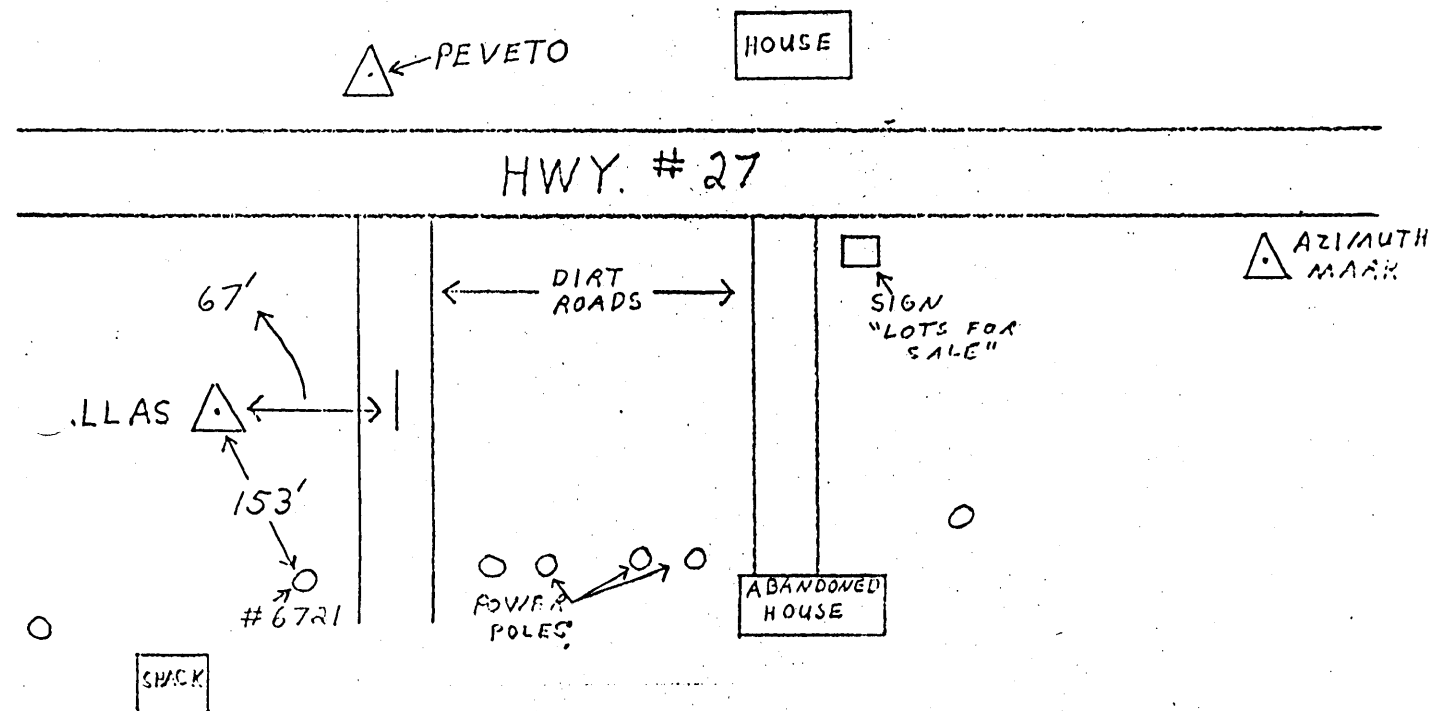
DESCRIBED BY: K.F. Van Train

NOTE.*	HEIGHT OF TELESCOPE ABOVE STATION MARK		METERS.†		HEIGHT OF LIGHT ABOVE STATION MARK		METERS.	
	SURFACE-STATION MARK, UNDERGROUND-STATION MARK		DISTANCES AND DIRECTIONS TO AZIMUTH MARK, REFERENCE MARKS AND PROMINENT OBJECTS WHICH CAN BE SEEN FROM THE GROUND AT THE STATION					
	OBJECT			BEARING	DISTANCE		DIRECTION‡	
					FEET	METERS		
	Lat. 29-45-38.5070						° ' "	
	Long. 93-34-03.1639							

This station can be located by using station PEVETO as a reference. The description for PEVETO is given in Horizontal Control Data, QUAD #290934 STATION #1089.

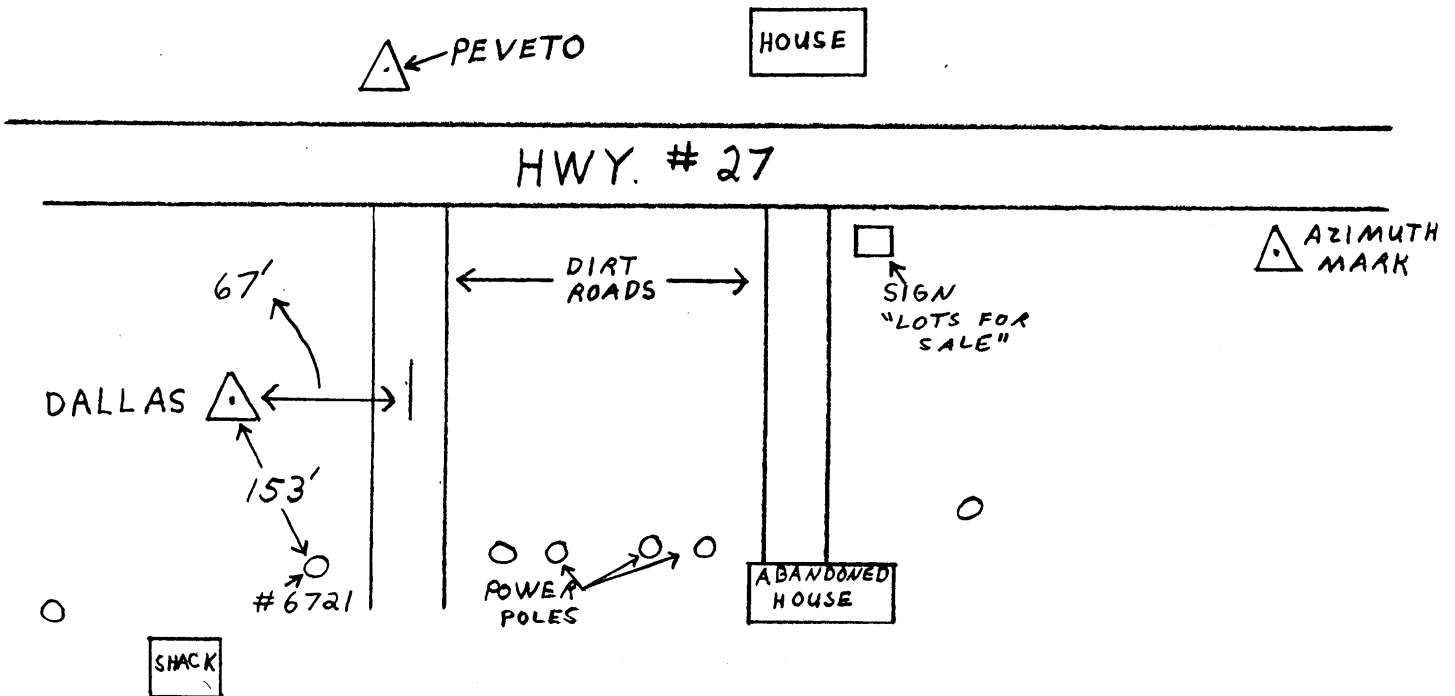
DALLAS station is located about 8 miles east of Johnsons Bayou School off of State Highway 27. It is marked by a metal stake driven into the ground with orange colored bunting wrapped around the top.

"DALLAS STATION"



*Refers to notes in manuals of triangulation and state publications of triangulation. †Direction-angle measured clockwise, referred to initial station.
‡To nearest meter only, when no trigonometric leveling is being done.

"DALLAS STATION"



A. Land is owned by Dallas Dominique and we have his permission to use the land. His address: Rt. 1 Box 250
Cameron, Louisiana 70631
Phone: LI2-8134

B. We hook in for power on pole #6721, JDE CO-OP: 42 065 960. The meter on the pole is owned by R.D. Spelman and he had given us permission to use it. We reimburse him for the power we use.
His address: 1724 Williams Circle
Sulfur, Louisiana 70663
Home phone: 318-625-3175
Bus. phone: 318-491-7300

To get the meter turned on contact: Jeff Davis Electrical CO-OP
Cameron Branch
Phone: 318-775-5332

DESCRIPTION OF TRIANGULATION STATION

NAME OF STATION: HANT

STATE: Texas

COUNTY: Jefferson

CHIEF OF PARTY: L.E. Pickens

YEAR: 1973

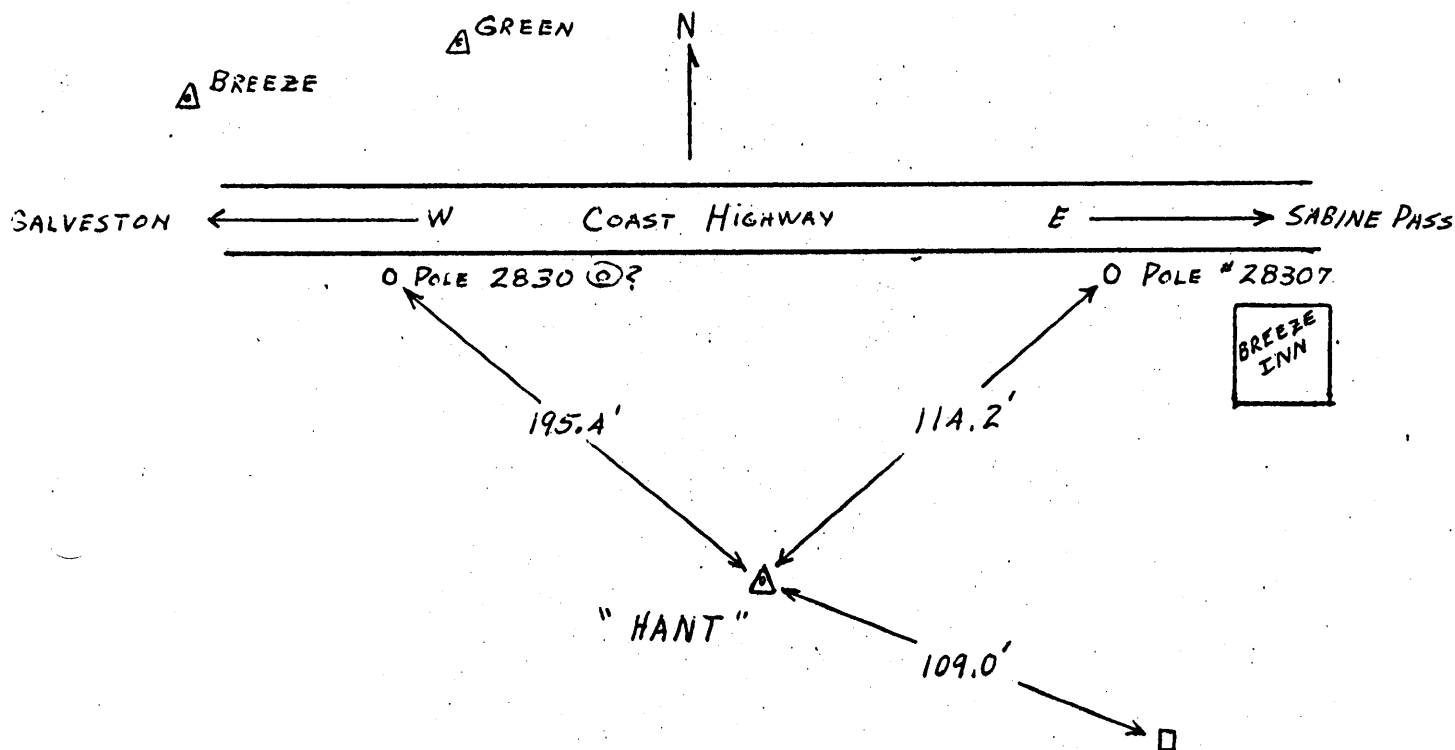
DESCRIBED BY: T.A. Bergner

NOTE.*	HEIGHT OF TELESCOPE ABOVE STATION MARK		METERS,†		HEIGHT OF LIGHT ABOVE STATION MARK		METERS.	
	SURFACE-STATION MARK, UNDERGROUND-STATION MARK		DISTANCES AND DIRECTIONS TO AZIMUTH MARK, REFERENCE MARKS AND PROMINENT OBJECTS WHICH CAN BE SEEN FROM THE GROUND AT THE STATION					
	OBJECT		BEARING	DISTANCE		DIRECTION‡		
				FEET	METERS			
	Lat. 29 -40 -03.0909					° ' "		
	Long. 94 -04 -20.7356							

Detailed description.

This station is located near the Breeze Inn, just off the Coast Highway between Galveston and Sabine Pass.

It is marked by a metal stake driven into the ground with orange colored bunting wrapped around the top, and can be reached by referring to the station description for GREEN.*

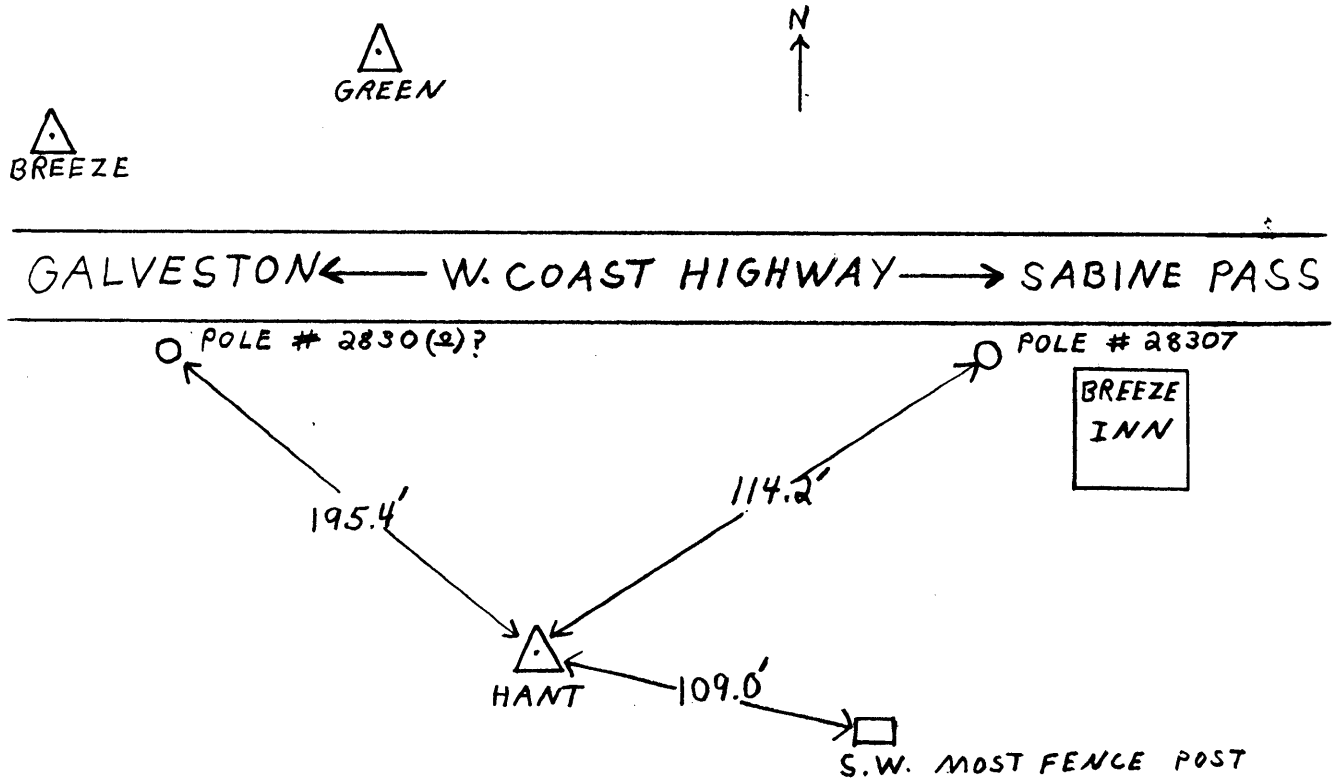


* The description for GREEN is given in Horizontal Control Data, QUAD #290941 STATION #1019. Diagram: NH 15-7, Houston.

†Refers to notes in manuals of triangulation and state publications of triangulation. ‡Direction-angle measured clockwise, referred to initial station.
 †To nearest meter only, when no trigonometric leveling is being done.

ATTACHMENT VII

"STATION HANT"



- A. Station HANT is marked by a metal stake with orange bunting tied on the top.
- B. Contact the owner of the "Breeze Inn". He will supply you with the electric power needed to run the station for a nominal fee.

Owner: Otis Segura
P.O. Box 87
Sabine Pass, Texas
Phone: 971-2401

ATTACHMENT I

B. VISUAL CONTROL SIGNALS

On this project there were no satisfactory ranges available for us to calibrate on. Instead we circle calibrated on the survey platforms and on Sabine Bank Light whose positions were known. See Attachment III B.

ATTACHMENT II

LIST OF GROUNDINGS AND HANGS

All significant hangs and groundings are addressed in the Addendum

Position No. & Dayletter	Buoy No.	Latitude	Longitude	Grounded Effective Depth	Cleared by Day & Strip No.	Cleared Effective Depth	Charted Depth	Remarks
34-E	7-8	29°37.38'	93°38.23'	34.5' 7020	--	--	--	wood frame, 6 inches off bottom. No hazard.
9-G	6-7	29°36.00'	93°46.75'	33'	E-1	--	--	mud hang
16-H	1-2	29°29.25'	93°40.65'	29'	P-3	--	--	mud hang
6-J	1	29°31.58'	93°42.89'	34' 7012	--	--	36'	collapsed survey tower, least depth of 30' in 36' of water, hang reported to Corp. of Engineers
26-J	4-5	29°29.70'	93°40.08'	34'	--	--	--	hung obstruction buoy
16-M	2-3	--	--	41'	--	--	--	"D" from N.W. to S.E.
20-N	3-4	29°24.85'	93°40.06'	42'	--	--	--	hung Danforth anchor, it was brought aboard RUDE
15-P	2-3	29°28.57'	93°39.73'	31' para "M" Addendum	--	--	--	hung sea buoy from South to North
23-Q	8-9	29°17.02'	93°39.95'	42.5'	--	--	--	"G" hung dredge range "F-3" S-N
14-T	2-3	29°11.55'	93°40.02'	51'	--	--	--	mud hang, divers reported undulating bottom 2-3 feet mud hang, 300-400 ft. of wire in the mud
26-U	2-3	29°24.85'	93°40.06'	40'	--	--	--	hung sea buoy from N to S
8-V	4-5	29°34.50'	93°48.97'	36' 7018	--	--	--	Item 15-A, double bottoms collapsed Cole survey platform
15-X	2-3	29°33.88'	93°45.57'	36' 7017	--	--	--	Buoy R "6"
16-U	1-2	29°30.74'	93°41.98'	30.5'	--	--	--	Buoy R "11"
22-U	2-3	29°30.59'	93°42.14'	31'	--	--	--	Buoy R "7"
5-Z	2-3	29°31.81'	93°43.30'	33.5'	--	--	--	mud hang
14-Z	1-2	29°34.11'	93°46.29'	32'	--	--	--	rehung Item 15-A, (intended clearing strip)
20-Z	1-2	29°34.22'	93°46.05'	32'	--	--	--	Buoy R "10"
	1-2	29°32.33'	93°44.20'	32'	--	--	--	Buoy R "9"

All significant hangs and groundings are addressed in the Addendum.

ATTACHMENT 11

LIST OF GROUNDINGS AND HANGS

All significant hangs and groundings are addressed in the Addendum.

POSITION No. & Dayletter	Bouy No.	Latitude	Longitude	Grounded Effective	Cleared by Day & Strip No.	Cleared Effective	Charted Depth	Remarks
20-Z	3-F	29°32.50'	93°43.98'	32'	--	--	--	Buoy R "8"
25-Z	3	29°31.83'	93°43.30'	33'	--	--	--	mud hang
3-AA	1-2	29°26.05'	93°40.12'	--	--	--	--	Buoy R "1"
3-AA	3	29°26.08'	93°39.90'	--	--	--	--	Buoy R "10"
7-AA	1-2	29°26.05'	93°40.12'	--	--	--	--	Buoy R "1"
7-AA	3-F	29°26.08'	93°39.90'	--	--	--	--	Buoy R "2"
16-AA	3-F	29°27.54'	93°39.90'	--	--	--	--	Buoy R "2A"
20-AA	1-2	29°28.69'	93°40.10'	--	--	--	--	Buoy R "3"
26-AA	2-3	29°27.54'	93°39.90'	--	--	--	--	Buoy R "2A"
30-AA	3	29°29.11'	93°40.01'	--	--	--	--	mud hang
5-BA	2-3	29°32.07'	93°43.55'	--	--	--	--	mud hang
10-BA	1-2	29°32.33'	93°44.20'	--	--	--	--	Buoy R "9"
10-BA	2-3	29°32.50'	93°43.98'	--	--	--	--	Buoy R "8"
22-BA	3-F	29°34.22'	93°46.05'	--	--	--	--	Buoy R "10"
22-BA	1-2	29°34.11'	93°46.29'	--	--	--	--	Buoy R "11"
27-BA	2-3	29°29.85'	93°40.94'	--	--	--	--	Buoy R "4A"
34-BA	2-3	29°30.74'	93°41.98'	--	--	--	--	Buoy R "6"
34-BA	1-2	29°30.59'	93°42.14'	--	--	--	--	Buoy R "7"
5-CA	1-2	29°29.03'	93°40.29'	--	--	--	--	Buoy R "5"
10-CA	2-3	29°29.85'	93°40.94'	--	--	--	--	Buoy R "4A"
14-CA	1-2	29°29.00'	93°39.87'	--	--	--	--	Buoy R "4"
17-CA	1-2	29°29.03'	93°40.29'	--	--	--	--	Buoy R "5"
20-CA	1-2	29°28.73'	93°40.12'	--	--	--	--	Buoy R "3"
24-CA	2-3	29°29.32'	93°40.07'	--	--	--	--	Dredge range "F6" "C"
26-CA	1-2	29°29.20'	93°39.93'	--	--	--	--	Dredge range "F5" "A"

All significant hangs and groundings are addressed in the Addendum.

APPROVAL SHEET

All records of this survey prior to smooth plotting are hereby approved. The field work was personally supervised by the undersigned and the boatsheet and records were inspected daily. The survey is considered complete and adequate for charting. ✓

CDR. L.E. Pickens
Commanding Officer
NOAA Ships RUDE & HECK

1/17/74

U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Atlantic Marine Center

Hourly heights are approved for

Tide Station Used (NOAA Form 77-12): *Galveston Pier 21

Period: July -September 1973

HYDROGRAPHIC SHEET:

OPR: 479

Locality: Off Shore, Sabine Pass, Texas

Plane of reference (mean ~~lower~~-low water): 3.4

Height of Mean High Water above Plane of Reference is


Remarks:

Zoning	Range	Time Difference		Lat.	Long.	Ratio
		HW	LW			
Area 1	2.5	-1.4 hr.	-1.5 hr.	29°39'	93°50'	1.8
Area 2	2.8	-1.8 hr.	-1.5 hr.	29°28'	93°43'	2.0

Apply time differences and range ratio for each zone to hourly heights from Pier 21, Texas.

*The designated control tide gage malfunctioned during entire project.

Tide range and time differences are based on predictions.


Chief, Tides Division

N/CG244-21-90

LETTER TRANSMITTING DATA

DATA AS LISTED BELOW WERE FORWARDED TO YOU
BY (Check):☐ ORDINARY MAIL☐ AIR MAIL☒ REGISTERED MAIL☐ EXPRESS☐ GBL (Give number) _____

DATE FORWARDED

2 April 1990

NUMBER OF PACKAGES

two (2)

TO:

Chief, Data Control Section, N/CG243
Room 151, WSC-1
Hydrographic Surveys Branch
National Ocean Service
Rockville, MD 20852

NOTE: A separate transmittal letter is to be used for each type of data, as tidal data, seismology, geomagnetism, etc. State the number of packages and include an executed copy of the transmittal letter in each package. In addition the original and one copy of the letter should be sent under separate cover. The copy will be returned as a receipt. This form should not be used for correspondence or transmitting accounting documents.

FE-337WD (R/H-40-3-73)OPR-479, LOUISIANA--TEXAS, GULF OF MEXICO

Pkg. 1: (Box)

- ~~12~~ "WIRE DRAG" Volumes.
- ~~2~~ Accordion Folders containing original field records for (1973) Year Days 199, 200, 204, 205, 206, 207, 208, 213, 214, 215, 218, 219, 220, 221, 225, 226, 227, 228, 232, 233, 234, 235, 239, 240, 241, 242, and 243 (original field records may include strip chart recordings, tender tester records, field plotted wire drag strips, and strip data; also office generated and verified wire drag strips may be included).
- ~~1~~ Envelope containing Smooth Tides.
- ~~1~~ Envelope containing data removed from the Descriptive Report.

DO NOT DISCARD ANY OF THIS DATA.

Page #1 of 2.

FROM: (Signature)

Maurice B. Hickson, III
Maurice B. Hickson, IIIRECEIVED THE ABOVE
(Name, Division, Date)

Return receipted copy to:

Chief, Atlantic Hydrographic Section
N/CG244
Atlantic Marine Center
439 W. York Street
Norfolk, VA 23510-1114

Dwayne S. Clark
4/10/90

N/CG244-21-90

LETTER TRANSMITTING DATA

TO:

Chief, Data Control Section, N/CG243
Room 151, WSC-1
Hydrographic Surveys Branch
National Ocean Service
Rockville, MD 20852

DATA AS LISTED BELOW WERE FORWARDED TO YOU
BY (Check):☐ ORDINARY MAIL☐ AIR MAIL☒ REGISTERED MAIL☐ EXPRESS☐ GBL (Give number) _____

DATE FORWARDED

2 April 1990

NUMBER OF PACKAGES

two (2)

NOTE: A separate transmittal letter is to be used for each type of data, as tidal data, seismology, geomagnetism, etc. State the number of packages and include an executed copy of the transmittal letter in each package. In addition the original and one copy of the letter should be sent under separate cover. The copy will be returned as a receipt. This form should not be used for correspondence or transmitting accounting documents.

FE-337WD (R/H-40-3-73)OPR-479, LOUISIANA--TEXAS, GULF OF MEXICO

Pkg. 2: (Tube)

☒ Field A&D Sheets.☒ Original Descriptive Report containing five (5) Smooth Sheets.

DO NOT DISCARD ANY OF THIS DATA.

Page #2 of 2.

FROM: (Signature)

Maurice B. Hickson, III
Maurice B. Hickson, IIIRECEIVED THE ABOVE
(Name, Division, Date)

Return receipted copy to:

Chief, Atlantic Hydrographic Section
N/CG244
Atlantic Marine Center
439 W. York Street
Norfolk, VA 23510-1114

03/30/90

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: FE-337WD

NUMBER OF CONTROL STATIONS	6
NUMBER OF POSITIONS	1496
NUMBER OF SOUNDINGS	0

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	0	/ /
VERIFICATION OF FIELD DATA	235	09/15/89
QUALITY CONTROL CHECKS	0	
EVALUATION AND ANALYSIS	56	03/16/90
FINAL INSPECTION	12	03/09/90
TOTAL TIME	303	
MARINE CENTER APPROVAL		03/29/90

ADDENDUM TO ACCOMPANY SURVEY FE-337WD

1. INTRODUCTION

a. In accordance with the memorandum from CDR Russell C. Arnold, Chief, Hydrographic Surveys Branch, N/CG24, dated December 27, 1988, a modified approach to marine center processing of this survey was undertaken. Processing was limited to:

1) The verification of wire drag effective depths and positions on all hangs (except aids to navigation) and the clearance depths over these hangs.

2) The verification of all groundings. Only one grounding conflicted with prior hydrography. This grounding was not cleared.

3) Charting recommendations based upon findings from the limited survey processing and a comparison with the latest largest scale charts of the area.

b. Five plots of thirteen verified hangs and one grounding were generated during processing and are attached to this report. These plots are considered the final or smooth sheets for this survey.

c. This survey was formerly registered as survey H-9368WD (1973); the registry number of which has subsequently been rescinded.

2. CHARTING RECOMMENDATIONS FOR CHARTS 11330, 5th ED., JULY 30, 1988 AND 11332, 21st ED., JUNE 27, 1987

These two charts cover the entire surveyed area. The majority of the charted hydrography within the common area originates with prior surveys H-8738 (1962-63), H-8767 (1962), H-8795 (1964), and H-8796 (1964). The sources of the hydrography adjacent to the dredged channels within the area of this survey are not readily available, but are probably U. S. Army Corps Of Engineers channel surveys.

The topography of this surveyed area is generally characterized by a relatively gentle sloping bottom. Sabine Bank lies in the middle of the surveyed area and is a rather large shoal rising approximately 10-20 feet above the depths of the surrounding areas. The hydrographer made note in several dive narratives that the bottom was observed as having an undulating (2-3 feet) characteristic. Otherwise the bottom within this area is generally unremarkable of natural features and the only remarkable features are man-made; such as the dredged channels, the dump sites, obstructions, wrecks, navigation buoys and markers, and oil platforms. Within the common area of this survey, two

wrecks and three obstructions were found. One of these wrecks and two of these obstructions are presently charted from advance information from this survey. Additionally there were six conflicting mud (bottom) hangs, one conflicting grounding, and three unidentified hangs on this survey. Mud (bottom) hangs and groundings which do not conflict with prior and/or charted data are neither smooth plotted nor addressed. Numerous floating aids to navigation were charted within the common area. Many of the buoys were hung but were not verified since the system of buoyage has changed over the 16 years since this survey was conducted. Several oil platforms are charted within the common area of this survey. No oil platforms were hung by the present survey. It is apparent that these platforms were constructed after the completion of this survey.

The following hangs occurred on this survey and have not been charted and are not in the AWOIS data base:

a. A hang (presently identified as AWOIS Item #7551) occurred at an effective depth of 33 feet in Latitude 29°37'23.3"N, Longitude 93°38'16.8"W. This hang was not cleared. This hang was investigated and is identified as a wooden hull partially buried in the mud. In one place in the records for strip E-1, this wreck is reported as being 6 feet (6') off the bottom, and in another place it is noted as being 6 inches (6") off the bottom. This conflict is not resolvable from the records of this survey. This wreck lies in prior (H-8796) depths of 33-34 feet. It is recommended that this wreck be charted in the position determined by the present survey as a dangerous sunken wreck using the sunken wreck dangerous to surface navigation symbol. (See Chart No. 1, Section O., Item 14.) Additional field work is recommended to obtain a least depth on this wreck. See sheet 1 of 5.

b. A hang occurred at an effective depth of 33 feet in Latitude 29°34'50.8"N, Longitude 93°47'00.0"W. This hang was not cleared. This hang was identified as a mud (bottom) hang. This hang lies in prior (H-8795) depths of 37 feet. This hang indicates a possible shoaling in this area. This hang falls in the dredged channel (Sabine Bank Channel). Subsequent (September, 1986) U. S. Army Corps of Engineers surveys used to portray the channel discount the present survey hang. See sheet 2 of 5.

c. A temporary hang occurred at an effective depth of 30 feet (estimated), in the vicinity of Latitude 29°33'30"N, Longitude 93°45'20"W (±1,000 feet). This area was partially cleared by 32 feet and 33 feet. This temporary hang was not investigated. This temporary hang lies in prior (H-8795) depths of 38 feet. This temporary hang indicates the possibility of shoaling in this area. This temporary hang occurred in or near (±1,000 feet) the

dredged channel (Sabine Bank Channel). Subsequent (September, 1986) U. S. Army Corps of Engineers surveys used to portray the channel discount the possibility of shoaling in the channel. However, the possibility of shoaling adjacent to the channel may exist. See sheet 2 of 5.

d. A hang occurred at an effective depth of 31 feet (estimated) in Latitude 29°32'03.3"N, Longitude 93°43'29.3"W. This hang was cleared by an effective depth of 29 feet. This hang was identified as a mud (bottom) hang. This hang lies in prior (H-8796) depths of 36 feet. This hang indicates a possible shoaling in this area. This hang falls adjacent to the dredged channel (Sabine Bank Channel). It is recommended that a 31-foot depth be charted and the latest U. S. Army Corps of Engineers surveys of the area of this hang be examined. See sheet 3 of 5.

e. A "moving" hang occurred at an effective depth of 31 feet (estimated) in the vicinity of Latitude 29°31'50"N, Longitude 93°43'22"W. This hang was not cleared. This hang was identified as a mud (bottom) hang and it continued to slowly move through the mud. This hang lies in prior (H-8796) depths of 36 feet. This hang indicates a possible shoaling in this area. This hang falls in and adjacent to the dredged channel (Sabine Bank Channel). It is recommended that the latest U. S. Army Corps of Engineers surveys (subsequent to the present survey) of the area of this hang be consulted. However, the U.S. Army Corps of Engineers survey (September, 1986) used to portray the charted channel discount shoaling in the channel. See sheet 3 of 5.

f. A hang occurred at an effective depth of 33 feet (estimated) in Latitude 29°31'23.5"N, Longitude 93°42'46.7"W. This hang was cleared by an effective depth of 29 feet. This hang was identified as a mud (bottom) hang. This hang lies in prior (H-8796) depths of 35-36 feet. This hang indicates a possible shoaling in this area. This hang is adjacent to the dredged channel (Sabine Bank Channel). It is recommended that a 33-foot depth be charted and the latest U. S. Army Corps of Engineers surveys (subsequent to the present survey) of the area of this hang be consulted. See sheet 3 of 5.

g. A temporary hang occurred at an effective depth of 26 feet (estimated) in the vicinity of Latitude 29°29'21"N, Longitude 93°40'19"W (±2,000 feet). This area was not cleared. This temporary hang was not investigated. This temporary hang lies in prior (H-8767 & H-8796) depths of 32 feet. This temporary hang is in close proximity to the dredged channel (Sabine Bank Channel). It is recommended that a 26-foot depth be charted as "26 ft shoal rep 1973" in the above position and that the latest U. S. Army Corps of Engineers surveys of the area of this hang be

AWOS
7761

examined. It is considered that the shoaling is not in the channel but to the east of the channel based upon the charted U.S. Corps of Engineers survey results. See sheet 4 of 5.

h. A "moving" hang occurred at an effective depth of 29 feet (estimated) in the vicinity of Latitude 29°29'20"N, Longitude 93°40'40"W. This hang was cleared by an effective depth of 26 feet. This hang was identified as a mud (bottom) hang and it continued to slowly move through the mud. This hang lies in prior (H-8767 & H-8796) depths of 32 feet. This hang indicates a possible shoaling in this area. This hang falls in and adjacent to the dredged channel (Sabine Bank Channel). It is recommended that the latest U. S. Army Corps of Engineers surveys of the area of this hang be examined. Shoaling in the channel is discounted based upon U.S. Army Corps of Engineers surveys of September, 1986 used to portray the channel on the chart. See sheet 4 of 5.

i. A hang occurred at an effective depth of 29 feet (estimated) in Latitude 29°29'09.5"N, Longitude 93°39'52.7"W. This hang was not cleared. This hang was identified as a mud (bottom) hang. This hang lies in prior (H-8767 & H-8796) depths of 31-32 feet. This hang indicates a possible shoaling in this area. This hang falls adjacent to the dredged channel (Sabine Bank Channel). It is recommended that a 29-foot shoal be charted in the survey position and that the latest U. S. Army Corps of Engineers surveys of the area of this hang be examined. See sheet 4 of 5.

j. A hang occurred at an effective depth of 32 feet (estimated) in Latitude 29°28'15.2"N, Longitude 93°38'11.8"W. This hang was not cleared. This hang was investigated and is identified as a concrete block measuring 6 feet by 6 feet and extending 1-foot off the bottom. This obstruction lies in prior (H-8767) depths of 28-29 feet. This obstruction is outside the Safety Fairway and is not considered a hazard to surface navigation. This obstruction is not recommended to be charted but should be included in the AWOIS database. No additional field work is specifically recommended for this obstruction but, at an opportune time, hydrography should be run in the area of this hang since this survey indicates the possibility of a slight deepening because the hang occurred at an effective depth of 32 feet. See sheet 4 of 5.

k. A hang occurred at an effective depth of 39 feet #7552 (estimated) in Latitude 29°22'19.4"N, Longitude 93°38'32.5"W, position approximate (±1,000 feet). This hang was not cleared. This hang was not investigated. Since the area of this hang is an area where oil platforms previously were and others are presently, the possibility exists that

this is a dangerous submerged obstruction. This hang lies in prior (H-8738) depths of 41-42 feet. It is recommended that this hang be charted in the approximate position determined by the present survey as a dangerous submerged obstruction by the symbol of a dotted danger curve, blue tint No. 1, and the proper label. (See Chart No. 1, Section O., Item 27.(Ob).) Additional field work is recommended to either verify or disprove this hang and, if found, to obtain an accurate position and least depth. See sheet 5 of 5.

l. An aid to navigation identified by the hydrographer as Obstruction Buoy "D" was hung in Latitude 29°29'44.7"N, Longitude 93°40'04.0"W. This buoy is no longer charted and no obstruction is charted within this area. The history of this aid to navigation should be investigated to determine if there is any possibility of an uncharted obstruction existing within this area. Deleted thru CL 645/78

"G"
m. A dredging range tower ~~(corresponding to present AWOIS Item #7008)~~ identified as "F-3" was hung in Latitude 29°28'34"N, Longitude 93°39'46"W, position approximate (±1,000 feet). This tower is not presently charted. The history of this dredging range tower should be investigated to determine if the complete tower was removed subsequent to the present survey. The TELECON in an AWOIS Listing dated May 23, 1989 appears inconsistent with the hydrographer's observation. See sheet 4 of 5. *

The following hangs occurred on this survey and were charted as the result of advance information (unverified) from this survey. These hangs have been assigned AWOIS Item numbers (OPR-K454).

n. Present AWOIS Item #7012 is identified as a collapsed survey platform covered by 30 feet. This item originated from advance information from the present survey (CL-983/73 and BP-87371). This obstruction is charted in Latitude 29°31'33.73"N, Longitude 93°42'51.84"W. The present survey hung this obstruction at an effective depth of 33 feet in Latitude 29°31'34.4"W, Longitude 93°42'52.6"W. This obstruction was cleared by an effective depth of 25 feet. Divers investigated this hang and reported it to be a collapsed survey platform extending 6 feet off the bottom. This obstruction lies in prior (H-8796) depths of 35-36 feet. It is recommended that all affected charts be revised to show this dangerous submerged obstruction in the position determined by the present survey as a 25-foot depth surrounded by a dotted danger curve, blue tint No. 1, the proper label, and a wire drag basket symbol outside the danger curve. (See Chart No. 1, Section O., Item 6a.) Additional field work is not recommended for this item unless a least depth is desired. See sheet 3 of 5.

* Dredge towers "E"(F-4) in lat 29-28-46.3N, long 93-39-43.3W and "G"(F-3) in lat 29-28-35.3N, long 93-39-43.3W were deleted thru LNM 3/86 (1/22/86) 8th CGD. A charted pipe "PA" in lat 29-28-42N, long 93-39-42W (AWOIS #7008) originating with LNM 53/84 (12/19/84) 8th CGD (determined to be ruins of dredge tower "E" F-4) was deleted thru CL 561/90 (COE).
5

o. Present AWOIS Item #7017 is identified as a collapsed survey platform covered by 30 feet. This item originated from advance information from the present survey (CL-1622/73 and BP-87371). This obstruction is charted in Latitude 29°33'52.8"N, Longitude 93°45'34.2"W. The present survey hung this obstruction at an effective depth of 26 feet in Latitude 29°33'52.1"N, Longitude 93°45'35.1"W. This obstruction was cleared by an effective depth of 24 feet. Divers investigated this hang and reported it to be a collapsed survey platform extending 7 feet off the bottom. This obstruction lies in prior (H-8795) depths of 38 feet. (The conflict between the hang depth of 26 feet on an object extending 7 feet off the bottom in prior depths of 38 feet cannot be resolved through the present survey data. It is apparent that an additional field investigation is necessary.) It is recommended that all affected charts be revised to show this dangerous submerged obstruction in the position determined by the present survey as a 24-foot depth surrounded by a dotted danger curve, blue tint No. 1, the proper label, and a wire drag basket symbol outside the danger curve. (See Chart No. 1, Section O., Item 6a.) Additional field work is recommended for this item. See sheet 2 of 5.

The following AWOIS Item was reported and charted prior to this survey and was located by this survey:

p. Present AWOIS Item #7018 (formerly Presurvey Review Item #15A) is identified as the sunken wreck "S. S. WILLIAM", a Liberty Ship (formerly the "S. S. WILLIAM BEAUMONT"), a double-bottom section 445 feet in length, and is reported covered by 30 feet. This wreck originated with Local Notice to Mariners No. 66 of 1971 (8/16/71) and is presently charted as described in Latitude 29°34'30"N, Longitude 93°49'06"W, position approximate. The present survey hung, at an effective depth of 25 feet, an overturned hull (double-bottom) extending 6 feet off the bottom in Latitude 29°34'24.2"N, Longitude 93°49'02.5"W. This hang was cleared by 22 feet. The wreck found is approximately 230 meters southeast of the charted wreck. Since the charted position of the wreck was reported as approximate and the hydrographer's description is very similar, this hang is considered to be AWOIS Item #7018. This wreck lies in prior (H-8795) depths of 37 feet. The conflict between the hang depth of 25 feet on an object extending 6 feet off the bottom in prior depths of 37 feet cannot be resolved through the present survey data. It is apparent that an additional field investigation is necessary. It is recommended that all affected charts be revised to show this dangerous sunken wreck in the position determined by the present survey as a cleared depth of 22 feet over a wreck obtained by wire drag and shown with a depth surrounded by a dotted danger curve, blue tint No. 1, the proper label, and a wire drag basket symbol outside the danger curve. (See

Chart No. 1, Section O., Item 15a.) No additional field work is considered necessary to adequately chart this wreck, but the general depths in the area of this wreck are in question as previously noted and should be resolved. See sheet 2 of 5.

The following AWOIS Item is common to this survey and was reported prior to this survey but was not located by this survey:

q. Present AWOIS Item #362 (formerly Presurvey Review Item #32) is identified as the sunken dredge "GULF TIDE", covered by more than 40 feet, in Latitude 29°15'48"N, Longitude 93°39'24"W. This charted wreck originates with Notice to Mariners No. 41 of 1947 and later revised by Notice to Mariners No. 42 of 1947, Notice to Mariners No. 40 of 1948, and H-8738 (1962-63). The search radius required in the AWOIS Listing for the investigation of this wreck is 250 meters. The entire search radius was cleared by the present survey by an effective depth of 38 feet. Present survey clearance was by one strip and therefore, is in one direction only. No hangs or groundings occurred within the search radius. Prior survey (H-8738) depths in the area of this item range from 42 to 46 feet. Since the clearance depth obtained is in one direction only and is not within 2 feet of the bottom, this wreck is not disproved and the clearance (in one direction only) is not sufficient for charting a clearance depth. This dangerous sunken wreck, 40 feet reported, is recommended to be retained as charted. Additional field work is recommended to resolve this item.

AWOIS Items #6997, 6998, 7000, 7006, 7008, 7014, and 7016 are all common to the area surveyed by this survey but were all reported subsequent to this survey. AWOIS Item #7013 was resolved by survey FE-326WD.

3. RECOMMENDATIONS FOR ADDITIONAL WORK

The recommendations for additional field work for the hangs, groundings, and items found by this survey are adequately addressed in the previous section of this addendum. The need for basic hydrography is evident due to the conflicts that were noted during the processing of this survey. The majority of the areas of conflict are the channel and adjacent areas where dredging, spoil dumping, and ocean current shifting of bottom material is likely to occur. It is recommended that basic hydrography be scheduled for the area of this survey.

Verification and
Recommendations by,

Checked by,

Maurice B. Hickson, III
Maurice B. Hickson, III
Cartographer
Evaluation & Analysis Team

R. D. Sanocki
R. D. Sanocki
Chief, Hydrographic
Processing Unit

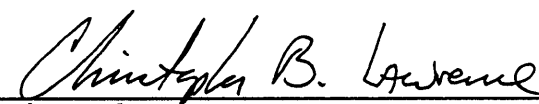
INSPECTION REPORT
FE-337WD

The completed wire drag survey has been examined with regards to presentation of survey results. The survey complies with National Ocean Service requirements except as noted in the Addendum to the Descriptive Report. This survey is not to be considered a basic hydrographic survey and is not approved as such. Only the data that has been verified, smooth plotted, and addressed in the Addendum to the Descriptive Report is approved for charting.

Inspected




R. D. Sanocki
Chief, Hydrographic Processing Unit




Christopher B. Lawrence, CDR, NOAA
Chief, Atlantic Hydrographic Section

Approved: March 29, 1990

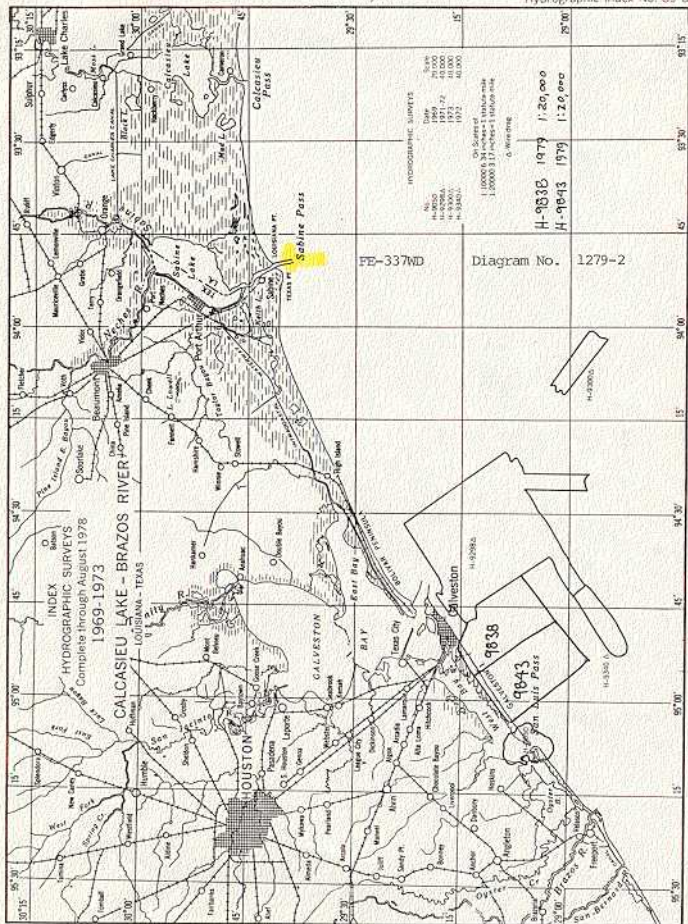


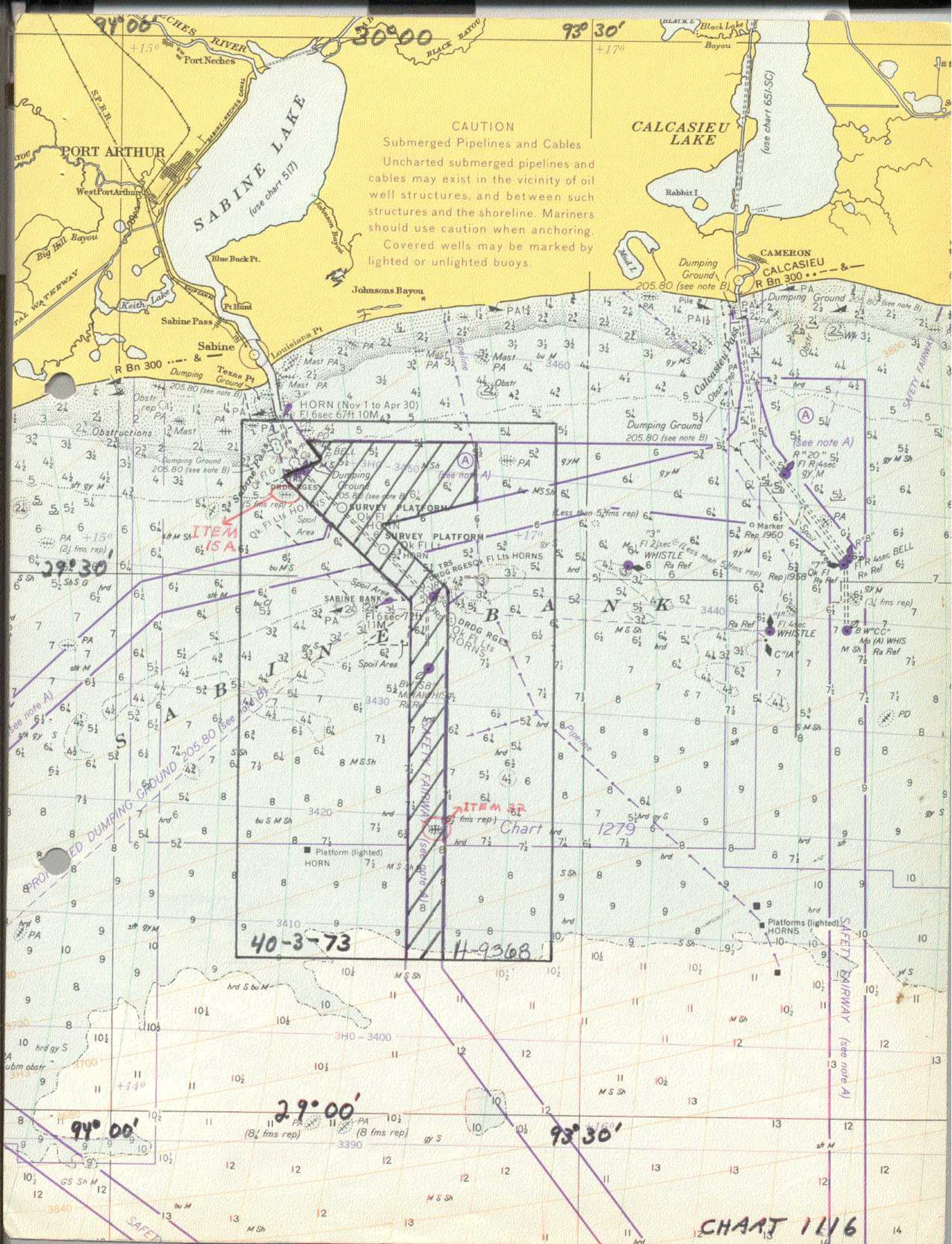
Ray E. Moses, RADM, NOAA
Director, Atlantic Marine Center



Wesley V. Hull, RADM, NOAA
Director, Office of Charting and
Geodetic Services

Hydrographic Index No. 89 G





CAUTION
Submerged Pipelines and Cables
Uncharted submerged pipelines and cables may exist in the vicinity of oil well structures, and between such structures and the shoreline. Mariners should use caution when anchoring.
Covered wells may be marked by lighted or unlighted buoys.

CHART 1116

93° 40'

93° 38'

93° 36'

29° 38'

P'
33 Wk

Hang at 33 ft
Not cleared
Wooden hull in mud
(AWOIS 7551)

29° 36'

FE-337WD
LOUISIANA-- TEXAS
GULF OF MEXICO
SABINE BANK
16 JULY TO 31 AUG 1973
SCALE = 1:40,000
N A 1927 DATUM
EFFECTIVE DEPTH IN FEET AT MLW
SHEET 1 OF 5

29° 34'

93° 40'

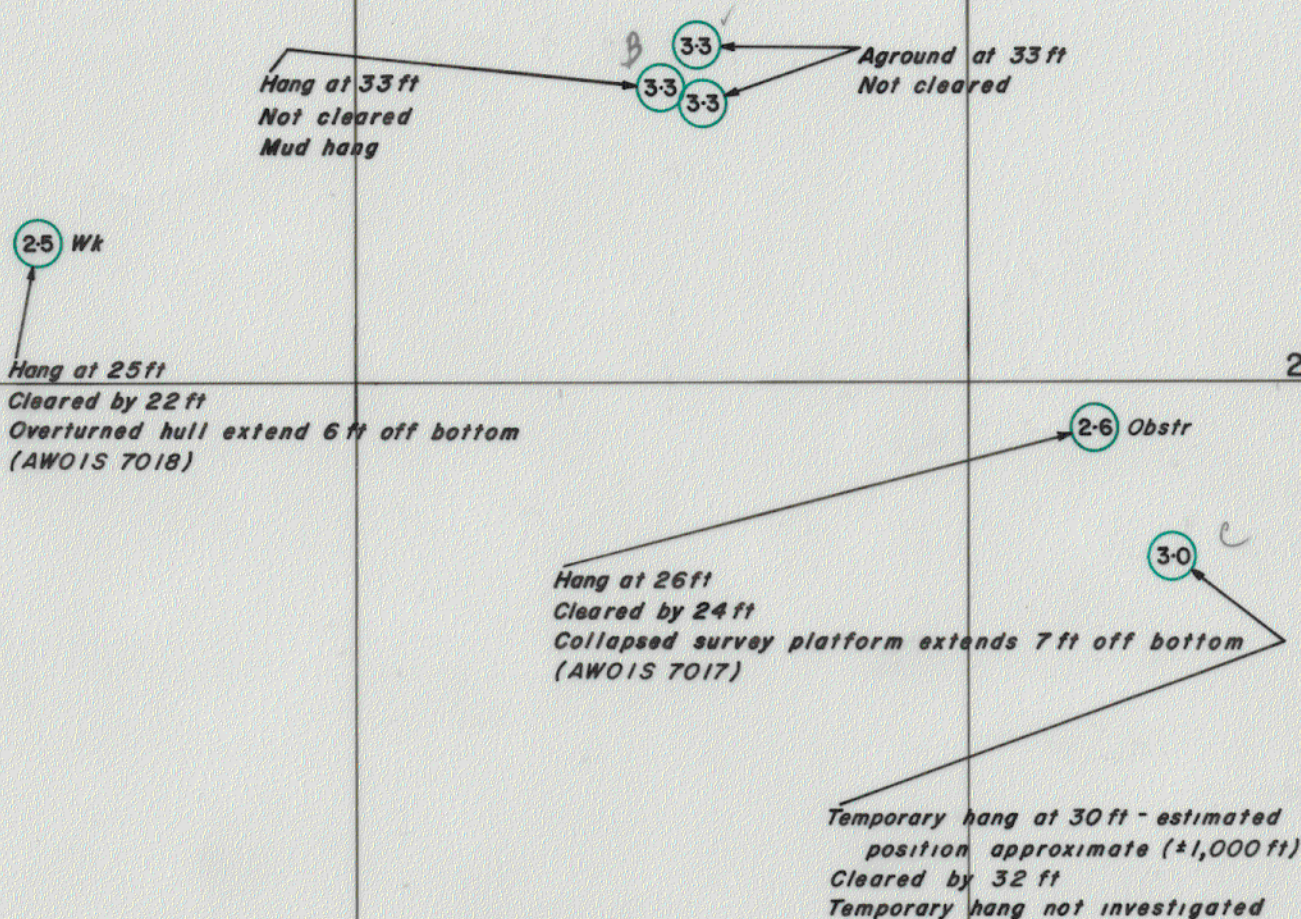
93° 38'

93° 36'

93° 48'

93° 46'

29°36'



29°34'

FE-337WD
LOUISIANA-- TEXAS
GULF OF MEXICO

29°32'

SABINE BANK
16 JULY TO 31 AUG 1973
SCALE = 1:40,000
N A 1927 DATUM
EFFECTIVE DEPTHS IN FEET AT MLW
SHEET 2 OF 5

93° 48'

93° 46'

93°44'

93°42'

29°34'

Hang at 31 ft - estimated
Cleared by 29 ft
Mud hang

Hang at 31 ft - estimated
Not cleared
Mud hang

29°32'

Hang at 33 ft - estimated
Cleared by 29 ft
Mud hang (diver verified)

Obstr

Hang at 33 ft - estimated
Cleared by 25 ft
Collapsed survey platform extends 6 ft off bottom
(AWOIS 7012)

FE-337WD
LOUISIANA -- TEXAS
GULF OF MEXICO
SABINE BANK
16 JULY TO 31 AUG 1973

29°30'

SCALE = 1:40,000
N A 1927 DATUM
EFFECTIVE DEPTHS IN FEET AT MLW
SHEET 3 OF 5

93°44'

93°42'

93° 42'

93° 40'

93° 38'

29° 30'

Hang at 29 ft - estimated
 Cleared by 26 ft
 Mud hang (diver verified)

Temporary hang at 26 ft - estimated
 position approximate (± 2000 ft)
 Not cleared
 Temporary hang not investigated

Hang at 29 ft - estimated
 Not cleared
 Mud hang (diver verified)

"F-3"
 Tower (dredging range)
 position approximate ($\pm 1,000$ ft)

3-2 Obstr

29° 28'

Hang at 32 ft - estimated
 Not cleared
 Concrete block, 6 ft by 6 ft, extends 1 ft off bottom

FE-337WD
 LOUISIANA--TEXAS
 GULF OF MEXICO
 SABINE BANK
 16 JULY TO 31 AUG 1973
 SCALE = 1:40,000
 N A 1927 DATUM
 EFFECTIVE DEPTHS IN FEET AT MLW
 SHEET 4 OF 5

29° 26'

93° 42'

93° 40'

93° 38'

93° 40'

93° 38'

93° 36'

29° 24'

3-9
Obstr

Hang at 39 ft - estimated
position approximate (± 1000 ft)
Not cleared
Hang not investigated

29° 22'

FE-337 WD
LOUISIANA -- TEXAS
GULF OF MEXICO
SABINE BANK
16 JULY TO 31 AUG 1973

29° 20'

SCALE = 1:40,000
N A 1927 DATUM
EFFECTIVE DEPTH IN FEET AT MLW
SHEET 5 OF 5

93° 40'

93° 38'

93° 36'

EXAMINED FOR MM
GDSU

JMS 8-31-90 JE

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.

- [illegible]

Apr 16, 1988